U.S. Patent No. 7,034,432 to Pelrine et al.

"13. The generator of claim 1 wherein the ***polymer*** comprises a material ***selected from the group*** consisting of silicone elastomer, acrylic elastomer, polyurethanes copolymer comprising PVDF, and combinations thereof." (emphasis added)

U.S. Patent No. 7,034,187 to Parthiban

"6. The process according to claim 4 wherein the at least one aralkanoic acid is ***selected from the group*** consisting of phenyl acetic acid, phenyl propionic acid thiophene-2-acetic acid, thiophene-3-acetic acid, biphenyl-2-acetic acid, biphenyl-3-acetic acid, biphenyl-4-acetic acid, bithiophene-2-acetic acid, bithiophene-3-acetic acid, terthiophene-2'-acetic acid, and terthiophene-3'-acetic acid.

13. The process according to claim 1 wherein the condensing agent is ***selected from the group*** consisting of phosphorus pentoxide, thionyl chloride, methane sulfonic anhydride and mixtures thereof.

22. The modifiable poly(aralkyl ketone) according to claim 21 wherein the modification reaction is ***selected from the group*** consisting of a reduction of the carbonyl group to a methylene group, a reduction of the carbonyl group to secondary alcohol, a reduction of the carbonyl group to secondary alcohol followed by dehydration leading to poly(phenylene vinylene)s, and trifluoromethylation of the carbonyl group to a tertiary alcohol." (emphasis added)

U.S. Patent No. 7,034,098 to Marck et al.

10. A ***polymer*** according to claim 9, wherein S.sub.1 is ***selected from the group*** consisting of a single covalent bond, --CO--O--, --O--CO--, --(CH.sub.2).sub.r--, --(CH.sub.2).sub.r--O--, --(CH.sub.2).sub.r--CO--, --(CH.sub.2).sub.r--CO--, --(CH.sub.2).sub.r--CO--O--, --(CH.sub.2).sub.r--O--CO--, --(CH.sub.2).sub.r--CO--NR.sup.1--, --(CH.sub.2).sub.r--NR.sup.1--CO--, --(CH.sub.2).sub.r--NR.sup.1--, --O--(CH.sub.2).sub.r--, --CO--O--(CH.sub.2).sub.r--, --O--CO--(CH.sub.2).sub.r--, --NR.sup.1--CO--(CH.sub.2).sup.r--, --CO--NR.sup.1--(CH.sub.2).sub.r--, --NR.sup.1--(CH.sub.2).sub.r--, --O--(CH.sub.2).sub.r--CO--O--, --O--(CH.sub.2).sub.r--O--CO--, --O--(CH.sub.2).sub.r--CO--NR.sup.1--, --O--(CH.sub.2).sub.r--CO--O--, --O--(CH.sub.2).sub.r--NR.sup.1--, --O--(CH.sub.2).sub.r--O--, --

O--(CH.sub.2).sub.r--NR.sup.1--CO--, --NR.sup.1--(CH.sub.2).sub.r--CO--O--, --NR.sup.1--(CH.sub.2).sub.r--O--, --NR.sup.1--(CH.sub.2).sub.r--NR.sup.1--, --NR.sup.1--(CH.sub.2).sub.r--O--CO--, --CO--NR.sup.1--(CH.sub.2).sub.r--O--, --CO--NR.sup.1--(CH.sub.2).sub.r--NR.sup.1--, --CO--NR.sup.1--(CH.sub.2).sub.r--O--CO--, --O--CO--(CH.sub.2).sub.r--CO--, --O--CO--(CH.sub.2).sub.r--O--, --O--CO--(CH.sub.2).sub.r--NR.sup.1--, --O--CO--(CH.sub.2).sub.r--CO--O--, --O--CO--(CH.sub.2).sub.r--CO--NR.sup.1--, --O--CO--(CH.sub.2).sub.r--NR.sup.1--CO--, --(CH.sub.2).sub.r--O--(CH.sub.2).sub.s--, --(CH.sub.2).sub.r--CO--O--(CH.sub.2).sub.s--, --(CH.sub.2).sub.r--O--CO--(CH.sub.2).sub.s--, --(CH.sub.2).sub.r--NR.sup.1--CO--(CH.sub.2).sub.s--, --(CH.sub.2).sub.r--NR.sup.1--CO--O--(CH.sub.2).sub.s--, --(CH.sub.2).sub.r--O--(CH.sub.2).sub.s--O--, --(CH.sub.2).sub.r--CO--O--(CH.sub.2).sub.s--O--, --(CH.sub.2).sub.r--O--CO--(CH.sub.2).sub.s--O--, --(CH.sub.2).sub.r--NR.sup.1--CO--(CH.sub.2).sub.s--O--, --(CH.sub.2).sub.r--NR.sup.1--CO--O--(CH.sub.2).sub.s--O--, --O--(CH.sub.2).sub.r--O--(CH.sub.2).sub.s--, --O--(CH.sub.2).sub.r--CO--O--(CH.sub.2).sub.s--, --O--(CH.sub.2).sub.r--NR.sup.1--CO--(CH.sub.2).sub.s--, --O--(CH.sub.2).sub.r--NR.sup.1--CO--O--(CH.sub.2).sub.s--, --O--(CH.sub.2).sub.r--CO--O--(CH.sub.2).sub.s--O--, --O--(CH.sub.2).sub.r--O--(CH.sub.2).sub.s--O--, --O--(CH.sub.2).sub.r--NR.sup.1--CO--(CH.sub.2).sub.s--O, --O--(CH.sub.2).sub.r--NR.sup.1--CO--O--(CH.sub.2).sub.s--O--, --CO--O--(CH.sub.2).sub.r--O--(CH.sub.2).sub.s-- and --CO--O--(CH.sub.2).sub.r--O--(CH.sub.2).sub.s--O--, wherein r and s, each independently of the other, represent an integer from 1 to 20, and wherein r+s.ltoreq.21." (emphasis added)

or looking at one of the patents issued to Galen Hartman, one of the inventors of the current invention, U.S. Patent No.5,776,573

"3. A composition as recited in claim 2, wherein the nonionic surfactant comprises at least one component ***selected from the group*** consisting of nonylphenoxypoly (ethyleneoxy), ethanol and poly (ethyleneoxy).sub.y nonylphenol, wherein x is a positive whole number between 1 and 50, and y is a positive whole number between 1 and 50." (emphasis added)

Further, none of the tables in the application and none of the formulas in the application are so restricted. Further, the language of Claim 26 makes no sense when

restricted as required. Claim 26 states "wherein the . . . combination of polymers . . . is selected from the group consisting of . . ." A combination of polymers from a single polymer. The attached Appendix of Tables shows the close relationship of all 24 polymer types by both chemical groups (Table 1) and by surface chemical groups based formulated for surface tension (Table 5). Based on the attached Appendix of Tables, Applicant provisionally elects the group of polyacrylates, polyacrylics, polyesters, polydiglycidyletheralkyl/aryldiols, polysulfonamides, polysulfones and polyvinylhalogens in Claim 26. All of these polymer types are extremely closely related in both classifications. Applicant reserves its rights in the remaining parts of Claim 26.

The USPO Action indicates that generic chemical groups such as various polymer types disclose patentably distinct species that should constitute patent applications separately.

The present patent application was written to be understandable and useable for individuals skilled in the art of chemistry, formulation of organics and inorganics, etc. The PA identifies specific compositions of individual polymers and mixtures of various polymer types, as well as, and more importantly, the technical and scientific guidelines to formulating products based on molecular composition of polymers, etc. and the blending of various polymers types to accomplish the formulation guides established in the invention that will provide good performance.

In the very first paragraph [0013] of the Summary of the Invention, the above point is clearly communicated by stating, "The impregnating compound has a polymer-based continuous phase designed to have solubility and surface properties within preselected limits. **The polymer-based continuous phase can be made from a single type of polymer or a mixture of two or more polymers**.

The invention instructs individuals skilled in the art to formulate with various polymer types, hybrid polymers that have multifunctional groups of various polymer types that are polymerized into a given polymer. These polymers are to follow technical guidelines presented in the invention so as to establish proper water and non-water solubilities, surface tensions, cationic and anionic character, acidic and alkalinity resistance, etc. The invention puts forward specific means that identify how the various performance properties are affected by the variation in polymer types and polymer functional groups in a given polymer, as well as, mixtures of polymers.

Viewing the USPO Action document of the various polymer types cited in the invention or "distinct species" comprising epoxies, polyacetals, polyacrylates, polyacrylics, polyacrylamides, polyalkylamides, polyamides, polyamideimides, polycarbonates, polycarboxylicdihydric esters, polyimides, polyesters, polycelulose acetate butyrates, polydiglycidylethealkyl/aryldiols, polysilicones, polysiloxanes, polystyrenes, polysucrose acetate butyarates, polysulfonamides, polysufones, polyurethanes, polyvinylacetals, and polyvinylhalogens are not distinct species even within this group.

For example from this group, the following is a prepared partial list of polymer types above that include some the same functional groups within each other:

Epoxies: polyacrylates, polyacrylics, polyacrylamides, polyalkylamides, polyamides, polyamideimides.

Polyacetals: polyvinylacetals.

Polycarbonates: polycarboxylicdihydric esters, polyesters, polycelulose acetate butyrates, polydiglycidylethealkyl/aryldiols, polysucrose acetate butyarates.

Polystyrenes: polycarboxylicdihydric esters, polyesters, polydiglycidylethealkyl/aryldiols, polysilicones, polysiloxanes, polystyrenes, polysucrose acetate butyarates, polysulfonamides, polysufones, polyurethanes.

To illustrate the above in a different way, an epoxy polymer can molecularly contain functional groups of, in part, acrylic, acrylate, amide, imide, amine, ester, halogen, alkyl, aryl, etc. and be classified as an epoxy polymer.

This invention illustrates to individuals skilled in the art how to formulate with specific homopolymers, heteropolymers, hybrid polymers, and mixtures of these types of polymers to accomplish specific performance properties that yield good performance.

This invention takes a mixture of polymer types and presents means to calculate the

three dimension parameters of solubility from the molecular compositions so that the degree of water solubility can be established and the inter-polymer compatibility of polymer-with-polymer can be established. The range or domain of acceptable solubility is identified within the invention. Other performance properties are also presented in the same manner as is solubility.

The continuous phase of the invention can be a single polymer, a hybrid polymer, or a mixture of many different polymer types that meet the specifications of the invention for the domains of various properties.

Once again, Applicant refers to the attached Appendix of Tables which clearly shows the close relationship of all 24 polymer types by both chemical groups and by surface chemical groups based formulated for surface tension, Table 1 and Table 5.

For the reasons set out above, Applicant respectfully traverses the restriction requirement and request that the restriction requirement be reversed.

Respectfully,

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APPENDIX OF TABLES

Reference No. for Polymer Type

Ref.	Polymer Type
1	Epoxies
2	Polyacetals
3	Polyacrylates
4	Polyacrylics
5	Polyacrylamides
6	polyalkylamides
7	polyamides
8	polyamideimides
9	polycarbonates
10	polycaroxylicdihydric esters
11	polyimides
12	polyesters
13	polycellulose acetate butyrate
14	polydiglycidyletheralkyl/aryldiols
15	polysilicones
16	polysiloxanes
17	polysiloxides
18	polystyrenes
19	polysucrose acetate butyrates
20	polysulfonamides
21	polysulfones
22	polyurethanes
23	polyvinylacetals
24	polyvinylhalogens

Table 1 Chemical Groups in Polymer Type

Chemical Group	Chemical Bond Type	Polymer Type Reference Nos.
-CH3	alkyl	1-24
-CH2-	alkyl	1-24
>CH-	alkyl	1-24
>C<	alkyl	1-24
CH2=	oleffinic	1-24
-CH=	oleffinic	1-24
>C=	oleffinic	1-24
-CH=	aromatic	1-5,7-23
>C=	aromatic	1-5,7-23
-O-	ether	1-14,19-23
-O-	acetal	1-2,23
-O-	oxirane	1,8,11,22
-COO-	ester	1,3-4,9-10,12,13,19,22
>C=O	ketone	1-17,19-22
-CHO	aldehyde	2,14,22
>(CO)2O	anhydride	1,10,12,14,22
-COOH	acid	1,3-10,12-14,19,22
-OH-->	H-bond	1-4,9-10,12-14,19,22
-OH	primary	1-17,19-23
-OH	secondary	1-17,19-23
-OH	tertiary	1-17,19-23
-OH	phenolic	1,3-8,10-12,14,21-24
-NH2	amino 1	1-8,11-12,14,20,22
-NH-	amino 2	1-8,11-12,14,20,22
>N-	amino 3	1-8,11-12,14,20,22
-C=N	nitrile	3-5,7-8,11-12,22
-NCO	isocyanate	3-5,22
HCON<	formamide	1-2,5-8,11-12,22-23
-CONH-	amide	1,5-8,11,12,22
-CONH2	amide	1,5-8,11,12,22
OCONH	urethane	1,3-8,11,12,22
-S-	thioether	20,21,22
-SH	thioether	20,21,22
Cl	primary	3,4,12,14,20,21,24
Cl	secondary	3,4,12,14,20,21,24
Cl	twinned	3,4,12,14,20,21,24
Cl	aromatic	3,4,12,14,20,21,24
Br	primary	3,4,12,14,20,21,24
Br	aromatic	3,4,12,14,20,21,24
F	primary	3,4,12,14,20,21,24

Table 3 Examples of Polymer Types Formulated for Solubility Parameters

polyvinylchloride
polyacrylonitrile
polymethacrylate
polyamideimide
polybutylacrylate
polystyrene
polybutadiene

Table 5 Surface Chemical Groups Formulated for Surface Tension

	Chemical Group	Polymer Type
-CH3	alkyl	1-24
-CH2-	alkyl	1-24
>CH-	alkyl	1-24
-CH=	aromatic	1-5,7-23
>C=	aromatic	1-5,7-23
F	primary	3,4,12,14,20,21,24
Cl	primary	3,4,12,14,20,21,24
Cl	secondary	3,4,12,14,20,21,24
Cl	twinned	3,4,12,14,20,21,24
Cl	aromatic	3,4,12,14,20,21,24

Table 11 and 12 Cationic and Anionic Chemical Groups (54) of Polymers Identified to Prevent Deposit Formation of Water Contaminates

There are 54 chemical groups identified in these two tables that are analogously part of polymers fromulated to control water contamination from depositing on the impregnation continuous phase surface